

air diffusion

Swirl⁵



Ceiling Swirl Diffuser

Fixed Air Pattern



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Note: All measurements are in mm

Introduction

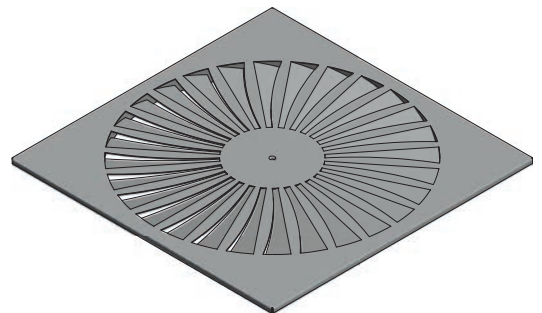
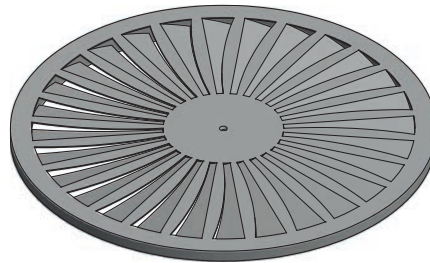
Swirl⁵ is a fixed pattern swirl air diffuser suitable for mixed flow ventilation and variable and constant volume systems.

The rotary swirl motion of the supply air rapidly induces room air to quickly decrease the velocity and temperature difference of the incoming supply air and helps create uniform air velocities and temperatures within the occupied zone.

Due to the design of the diffuser and resulting air pattern, high air change rates can be achieved whilst still maintaining comfort levels.

The diffuser can be used on ceiling heights ranging from 2.6-4.0m, in cooling applications.

Our purpose designed and individually selected plenum boxes will ensure optimum performance from the Swirl⁵ diffuser.



Key Features

- ▶ Available in 600 size tile replacement suitable for various air volume ranges.
- ▶ Available in 300, 400, 500 and 600mm circular formats
- ▶ Volume flow rate range - (based on 35NR/15pa max) 20 - 180l/s
- ▶ For supply and extract air applications
- ▶ Suitable for variable and constant volume
- ▶ A temperature differential of -10 to 0k degrees between the supply air and room air is recommended
- ▶ Fixed air pattern
- ▶ Face plates available in a wide variety of RAL colours
- ▶ Matching plenum boxes (circular/square) available with the option of a cord operated or manual operated quadrant damper

Technical Description

Materials and Finishes

Construction from 1.2mm galvanised steel

Polyester powder coat to RAL9010 - 30% gloss to all external surfaces.

Alternatively, we have five standard RAL colours to select from

- RAL 9010 'White'
- RAL 9016 White'
- RAL 9003 'White'
- RAL 9006 'Silver'
- RAL 9005 'Black'

Model Types

Square Diffusers

Square diffusers are suitable for lay-in, clip-in, tegular type ceilings and solid ceilings.

Square type naming convention:

- SW5 - 300
- SW5 - 400
- SW5 - 500
- SW5 - 600

Circular Diffusers

Circular diffusers are suitable for solid or exposed ceilings (with optional circular plenum box).

Circular type naming convention:

- SW5 - C - 300
- SW5 - C - 400
- SW5 - C - 500
- SW5 - C - 600

Performance Data

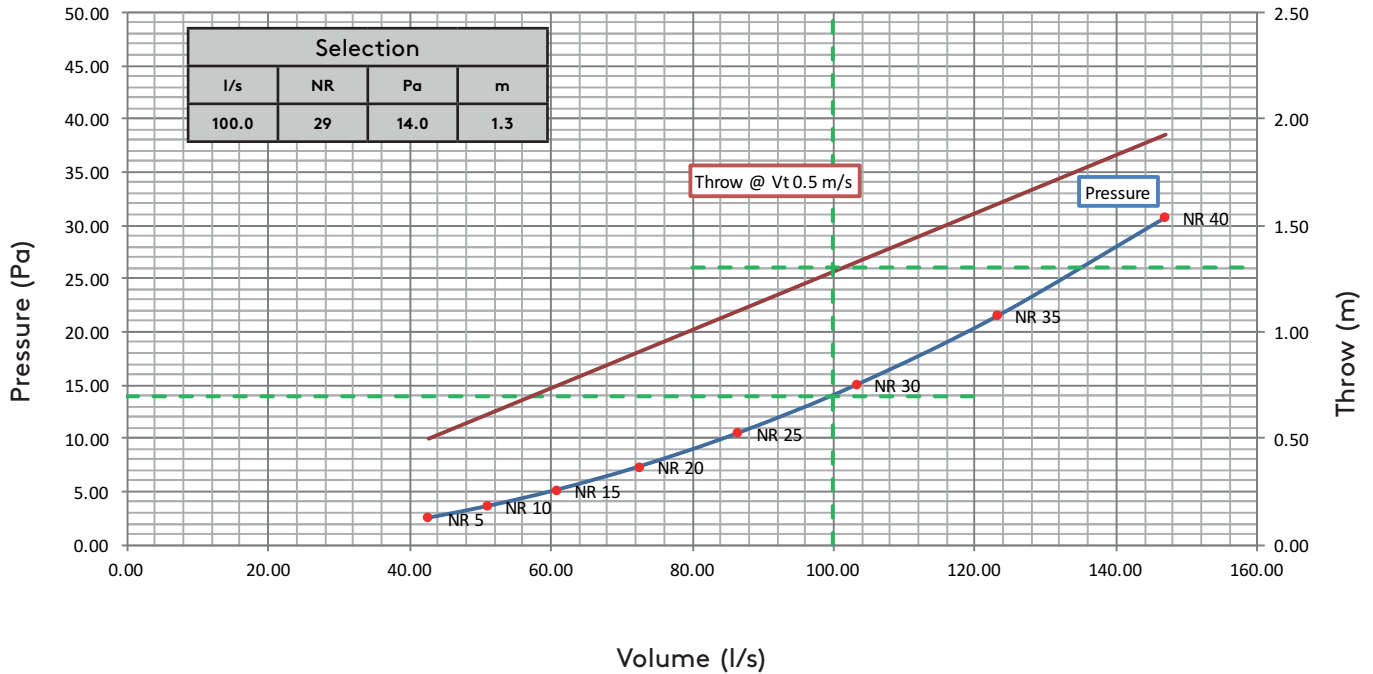
Swegon R&D Academy Test Notes

- ▶ Throw data is based on a temperature differential of 10°C cooling to a terminal velocity of 0.50 and 0.25 m/s respectively to give average room velocities no greater than 0.25m/s with a room height of 2.7m when mounted flush with an unobstructed ceiling
- ▶ Pressure measurement is static plenum pressure based on a side entry plenum box
- ▶ NR values include -8dB room absorption and are calculated as per BS 8233:2014 Anex B (NR ≈ dBA -6)
- ▶ Aerodynamic testing carried out in general accordance to BS EN 12238:2001 (Ventilation for buildings - Air terminal devices - Aerodynamic testing and rating for mixed flow applications)
- ▶ Acoustic testing carried out in general accordance to BS EN ISO 5135:1999 acoustics. Determination of sound power levels of noise from air-terminal devices, air-terminal units, dampers and valves by measurement in a reverberation room

Selection Example

- ▶ Selection @ 100 l/s
- ▶ Pressure 14pa
- ▶ Throw 1.3m
- ▶ Sound Level NR 29

SW5 400 Selection Example



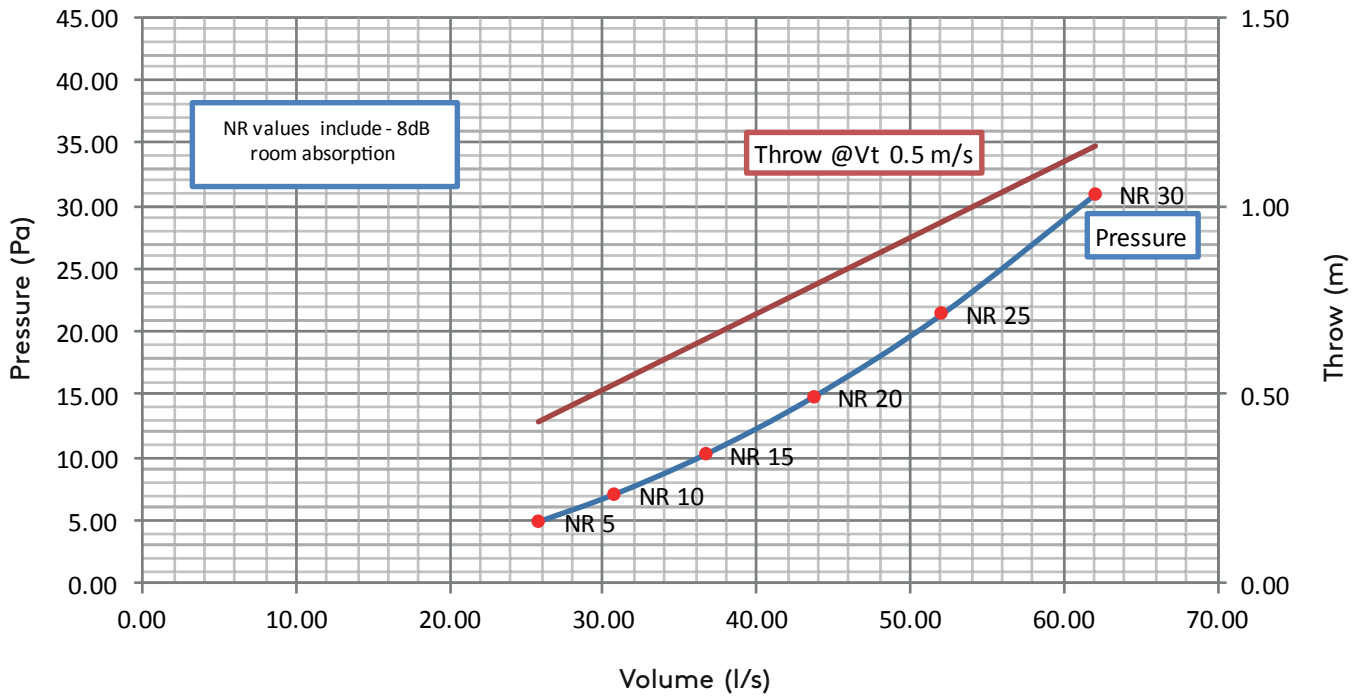
Quick Selection Data

| SW5 - Swirl Ceiling Diffuser - Selection Table | | | | | | | | | | | | | | | | | |
|--|-------------------|------------------------|-----|-----|-----|----------------|-----|-----|-----|-----------------------------------|-----|-----|-----|------------------------------------|-----|-----|-----|
| Volume | | Static Plenum Pressure | | | | Sound Level NR | | | | Throw (Terminal Velocity 0.5 m/s) | | | | Throw (Terminal Velocity 0.25 m/s) | | | |
| l/s | m ³ /h | 300 | 400 | 500 | 600 | 300 | 400 | 500 | 600 | 300 | 400 | 500 | 600 | 300 | 400 | 500 | 600 |
| 25 | 90 | 5 | | | | 5 | | | | 0.4 | | | | 0.9 | | | |
| 50 | 180 | 20 | 4 | | | 24 | 10 | | | 0.9 | 0.6 | | | 1.6 | 1.2 | | |
| 75 | 270 | 47 | 8 | 4 | | 36 | 21 | 15 | | 1.4 | 0.9 | 0.8 | | 2.3 | 1.5 | 1.2 | |
| 100 | 360 | | 14 | 7 | 5 | | 30 | 24 | 19 | | 1.3 | 1.1 | 0.8 | | 1.8 | 1.5 | 1.3 |
| 125 | 450 | | 23 | 11 | 7 | | 36 | 30 | 24 | | 1.6 | 1.3 | 1.0 | | 2.2 | 1.8 | 1.5 |
| 150 | 540 | | 32 | 15 | 10 | | 41 | 36 | 29 | | 2.0 | 1.6 | 1.2 | | 2.5 | 2.1 | 1.7 |
| 175 | 630 | | | 20 | 13 | | | 40 | 33 | | | 1.8 | 1.4 | | | 2.4 | 1.9 |
| 200 | 720 | | | 26 | 17 | | | 44 | 37 | | | 2.1 | 1.6 | | | 2.7 | 2.1 |
| 225 | 810 | | | 32 | 22 | | | 48 | 40 | | | 2.4 | 1.8 | | | 3.0 | 2.3 |
| 250 | 900 | | | | 26 | | | | 42 | | | | 2.0 | | | | 2.5 |
| 275 | 990 | | | | 32 | | | | 45 | | | | 2.2 | | | | 2.7 |

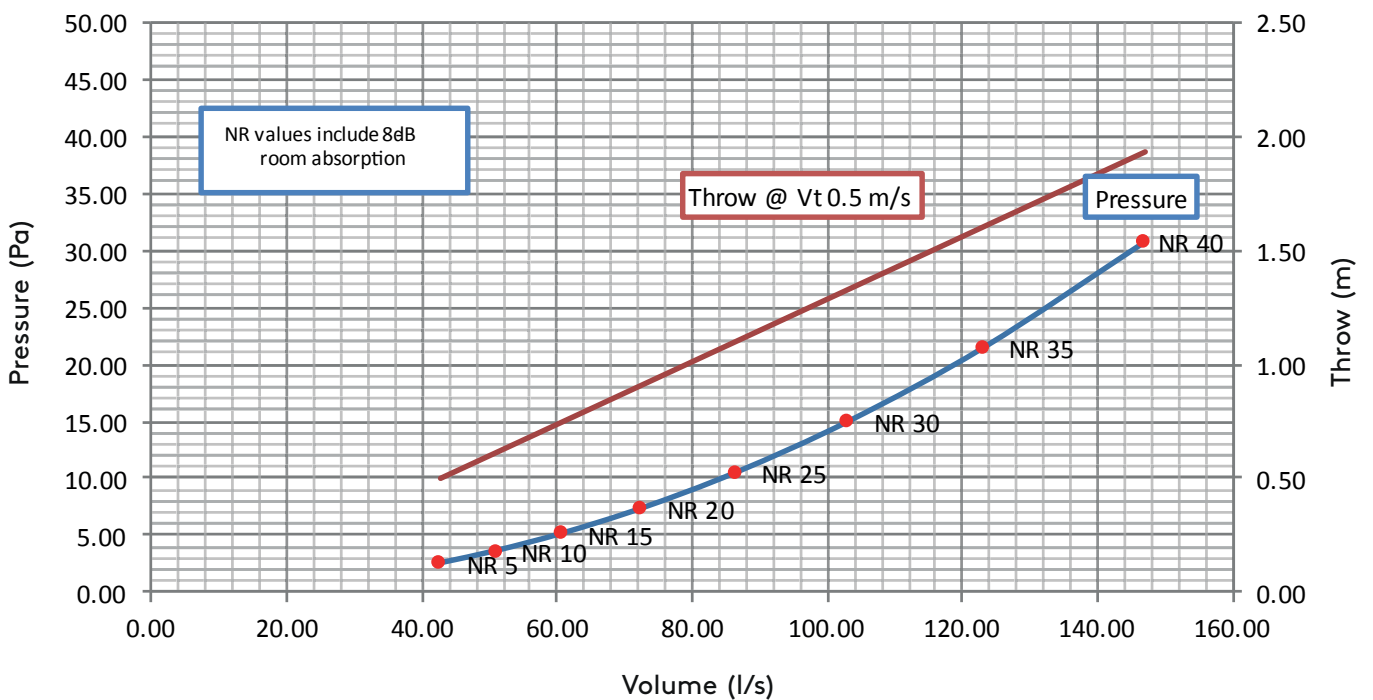
Selection Data

Graphs based on a terminal velocity of 0.5m/s

SW5 300 Selection Table



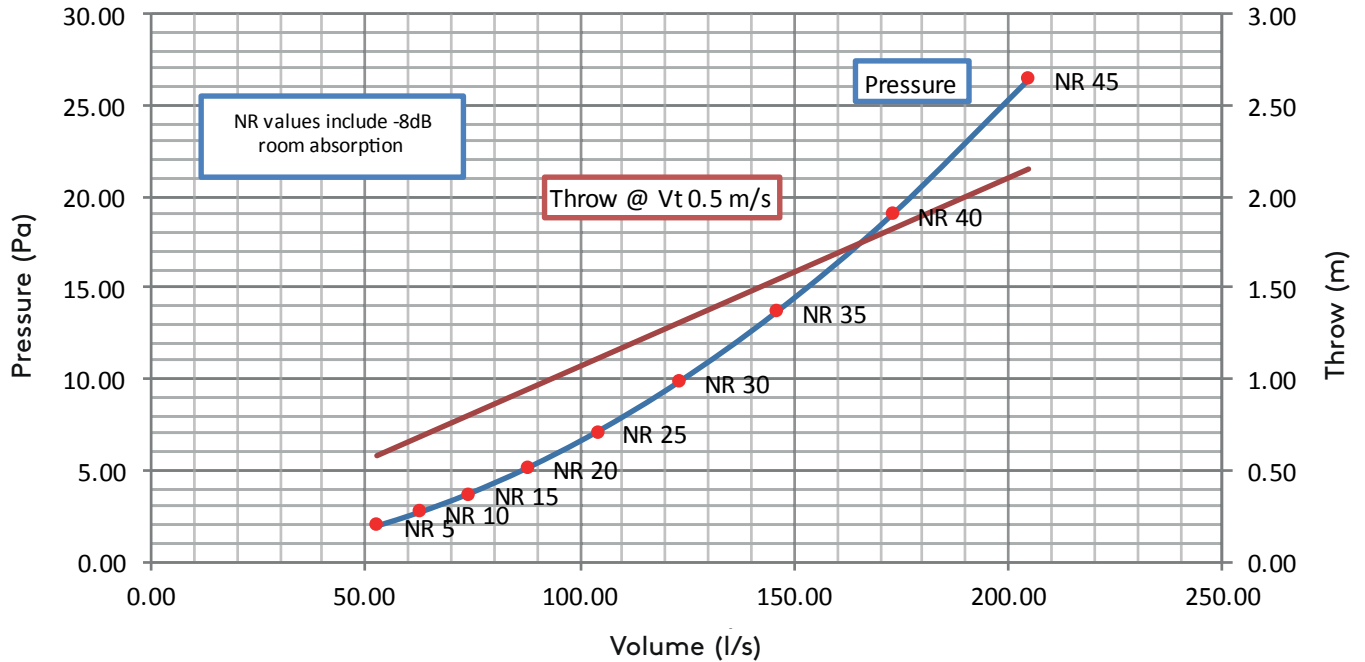
SW5 400 Selection Table



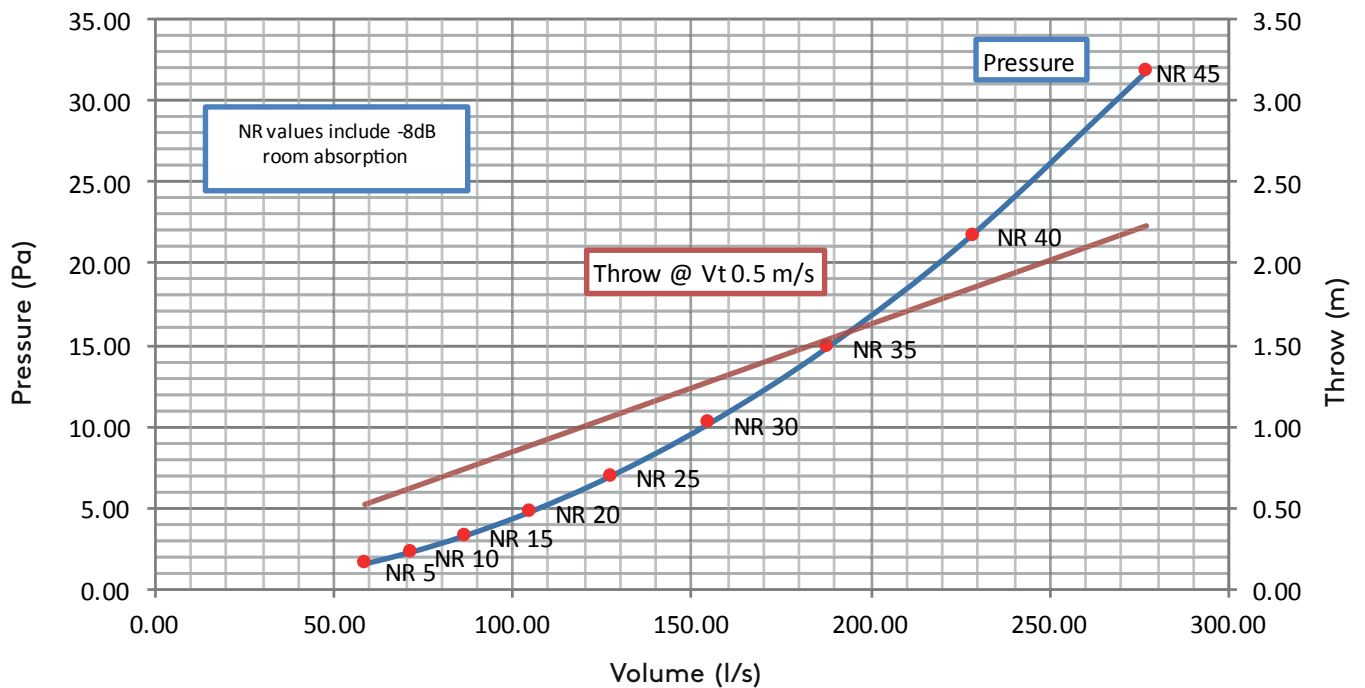
Selection Data

Graphs based on a terminal velocity of 0.5m/s

SW5 500 Selection Table



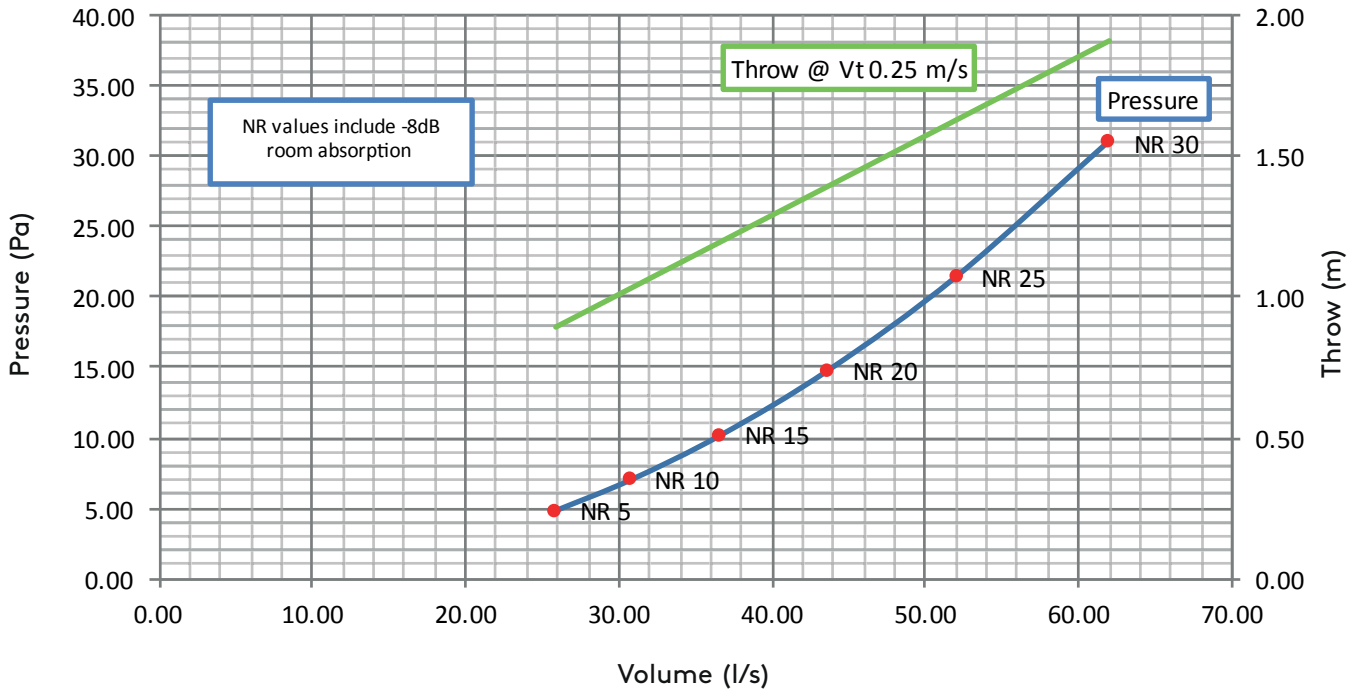
SW5 600 Selection Table



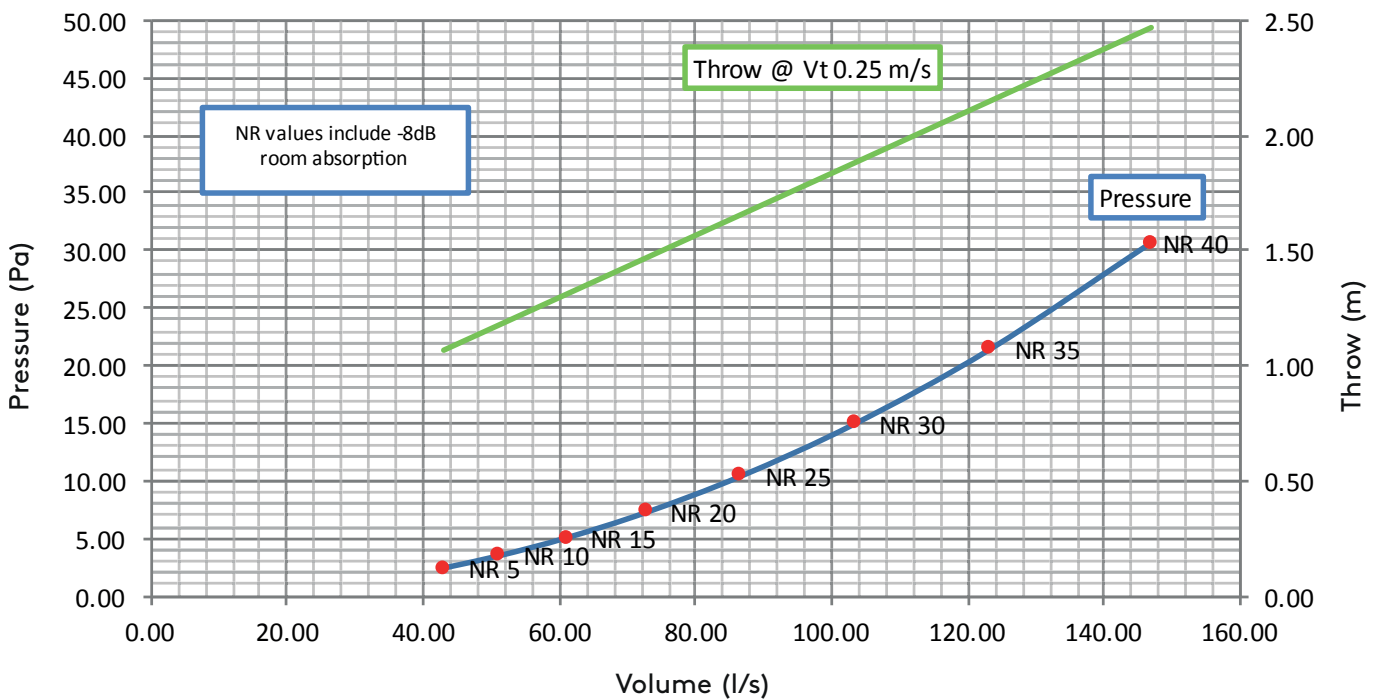
Selection Data

Graphs based on a terminal velocity of 0.25 m/s

SW5 300 Selection Table



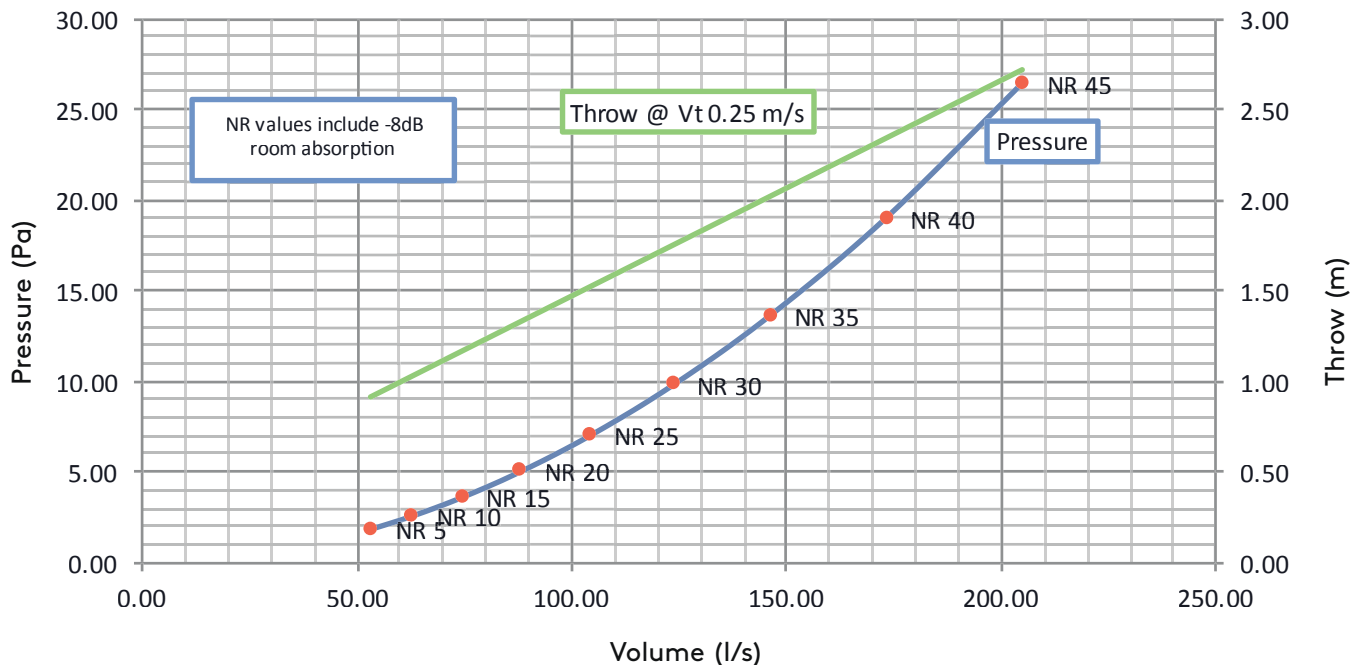
SW5 400 Selection Table



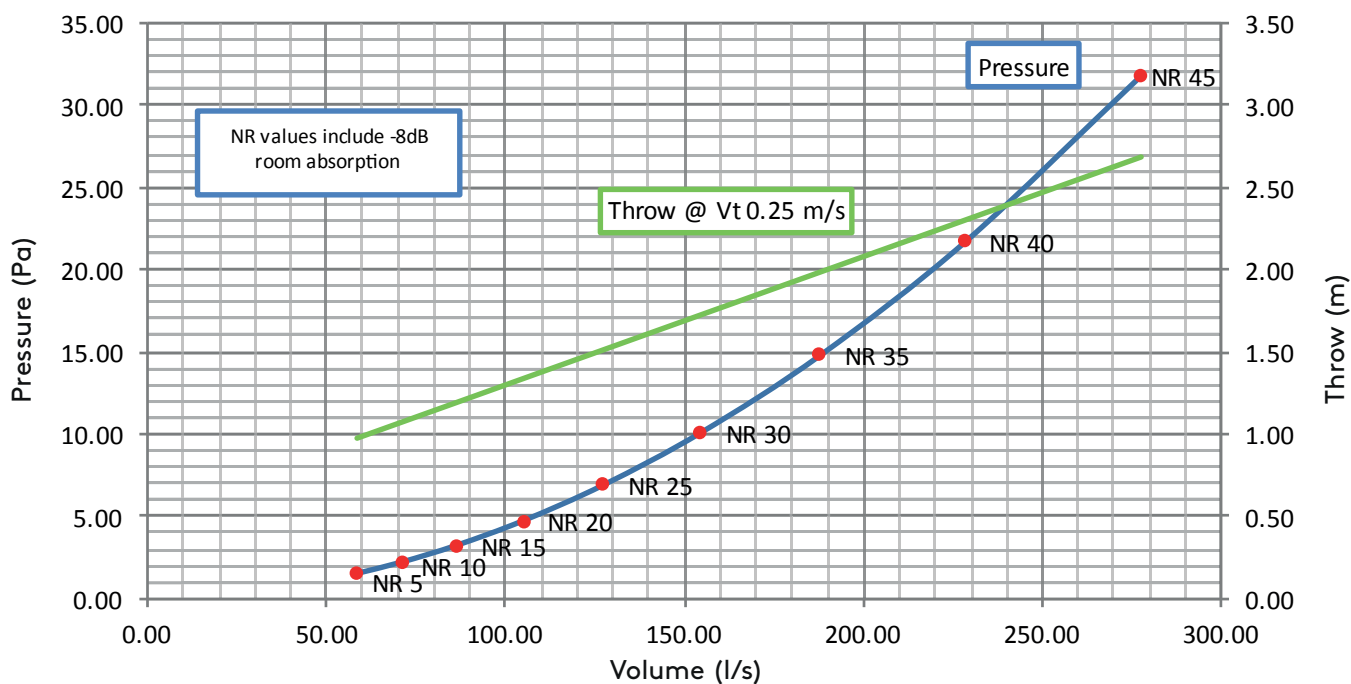
Selection Data

Graphs based on a terminal velocity of 0.25 m/s

SW5 500 Selection Table

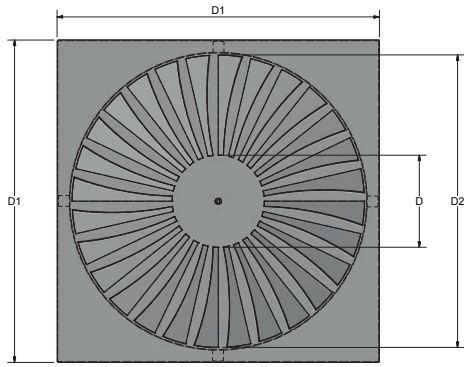


SW5 600 Selection Table



Dimensions and Weights

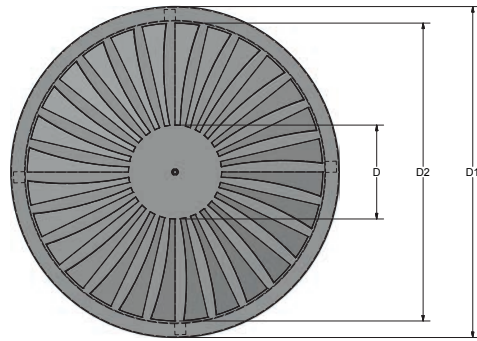
Square Diffusers SW5



Lay in Dimensions

| Size | D1 | D2 | D | Aeff m ² | Weight (kg) |
|------|-----|-----|-----|---------------------|-------------|
| 300 | 595 | 254 | 84 | 0.0145 | 2.7 |
| 400 | 595 | 350 | 92 | 0.0301 | 2.8 |
| 500 | 595 | 450 | 150 | 0.0386 | 2.8 |
| 600 | 595 | 540 | 170 | 0.058 | 2.9 |

Circular Diffusers SW5-C



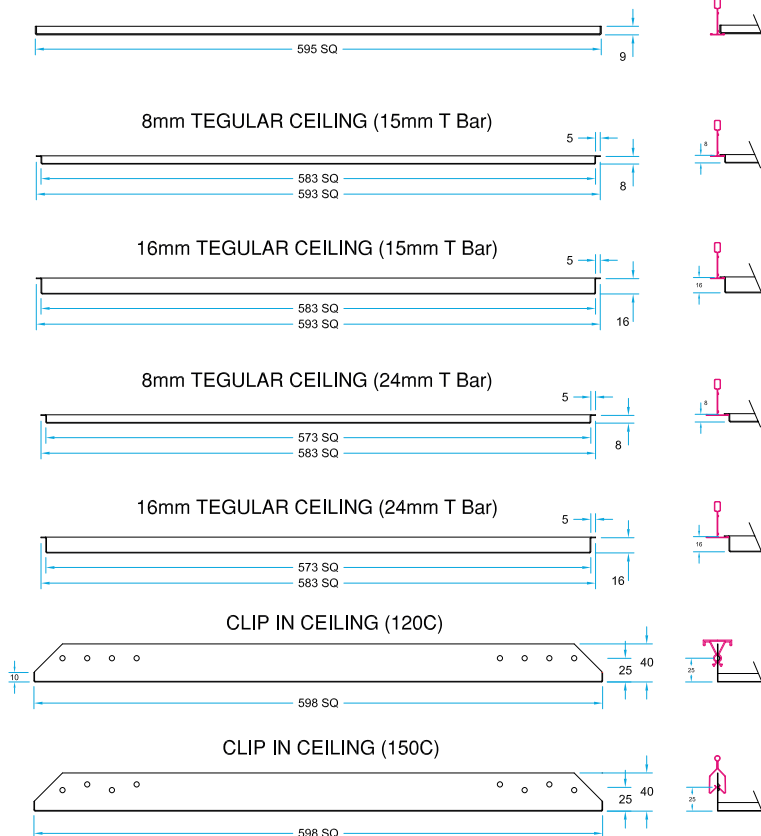
Lay in Dimensions

| Size | D1 | D2 | D | Aeff m ² | Weight (kg) |
|------|-----|-----|-----|---------------------|-------------|
| 300 | 300 | 254 | 84 | 0.0145 | 0.6 |
| 400 | 400 | 350 | 92 | 0.0301 | 1.1 |
| 500 | 500 | 450 | 150 | 0.0386 | 1.7 |
| 600 | 600 | 540 | 170 | 0.058 | 2.4 |

Additional Border Dimensions

Swirl 5 Options

LAY IN CEILING



Note: All measurements are in mm

Plenum Boxes

Specification

Plenum box is constructed of a minimum of 0.7mm thick galvanised sheet steel. Generally fabricated in 3 sections which are mechanically jointed. Plenums are supplied as standard unlined side entry with fixing / hanging brackets and crossbar as standard.

Accessories

- ▶ Spigot balancing / commissioning dampers include manual quadrant or cord operated
- ▶ 6mm thick class 'O' internal lining (12/25mm thick available on request)
- ▶ Equalising grid (50% free area perforated mesh)
- ▶ Fixing / hanging brackets can be removed or special types on request

Finish

- ▶ Standard finish galvanised steel
- ▶ Can be polyester powder coated to a chosen RAL colour. Please contact the sales office for more details

Selection Guide

| Spigot Velocity m/s | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 |
|---------------------|-----|-----|-----|-----|-----|-----|
| Pressure Drop Pa* | 2 | 4 | 6 | 8 | 12 | 16 |
| Sound Level NR* | - | - | 25 | 30 | 35 | 40 |

Spigot Volumes

| Diameter (mm) | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 |
|---------------|-----|-----|-----|-----|-----|-----|
| 100 | 10 | 15 | 19 | 22 | 26 | 30 |
| 125 | 18 | 24 | 30 | 35 | 41 | 47 |
| 150 | 25 | 34 | 42 | 51 | 60 | 68 |
| 160 | 35 | 46 | 58 | 70 | 82 | 94 |
| 200 | 45 | 60 | 75 | 91 | 109 | 121 |
| 225 | 58 | 77 | 96 | 117 | 137 | 151 |
| 250 | 71 | 95 | 120 | 142 | 170 | 191 |
| 275 | 86 | 115 | 145 | 172 | 205 | 230 |
| 300 | 103 | 139 | 172 | 208 | 240 | 275 |
| 315 | 120 | 160 | 200 | 240 | 280 | 320 |
| 350 | 140 | 188 | 235 | 280 | 328 | 375 |
| 400 | 185 | 245 | 310 | 370 | 430 | 495 |

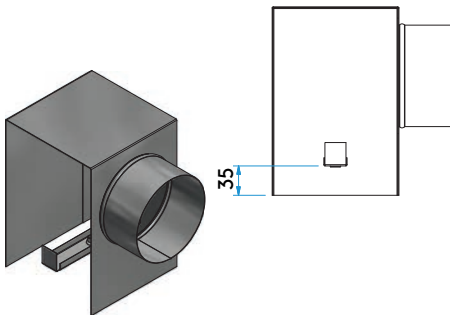
Swegon R&D Academy Test Notes

The pressure drop given is for supply diffuser with the damper fully open. When the diffuser is installed with plenum box, the additional pressure loss of the box has to be added to the diffuser.

Plenum Accessories

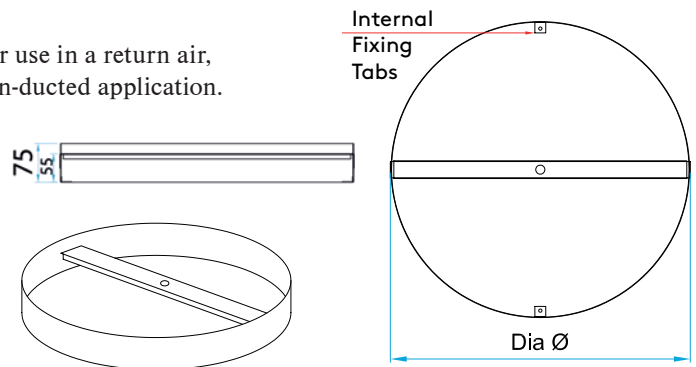
Crossbar

Crossbar fitted as standard to Swirl⁵ diffuser plenums.



Fixing Collar

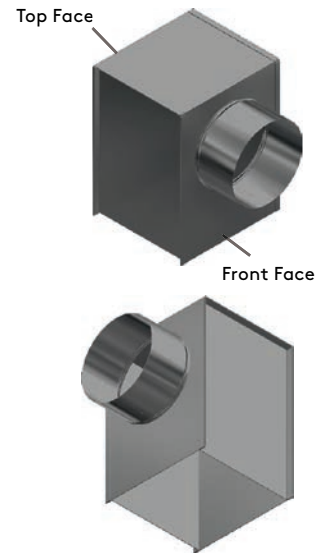
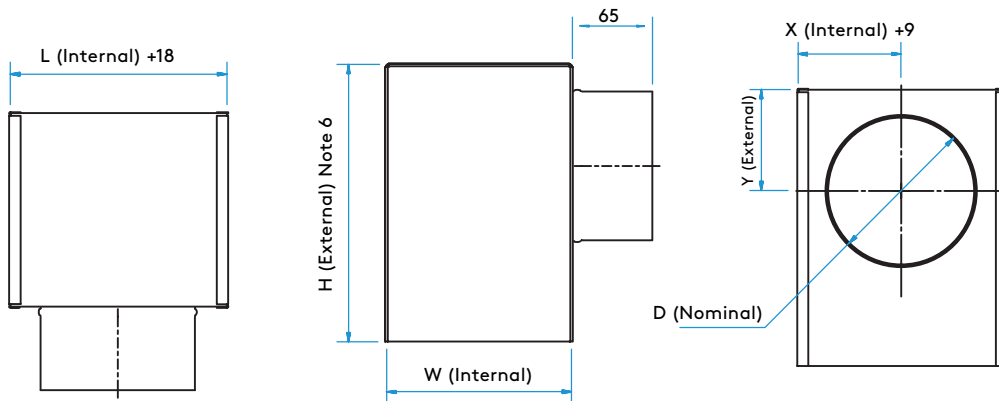
For use in a return air, non-ducted application.



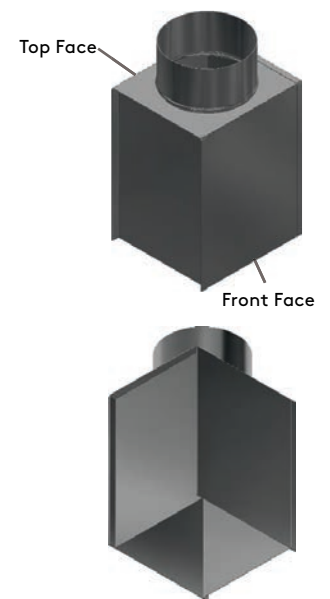
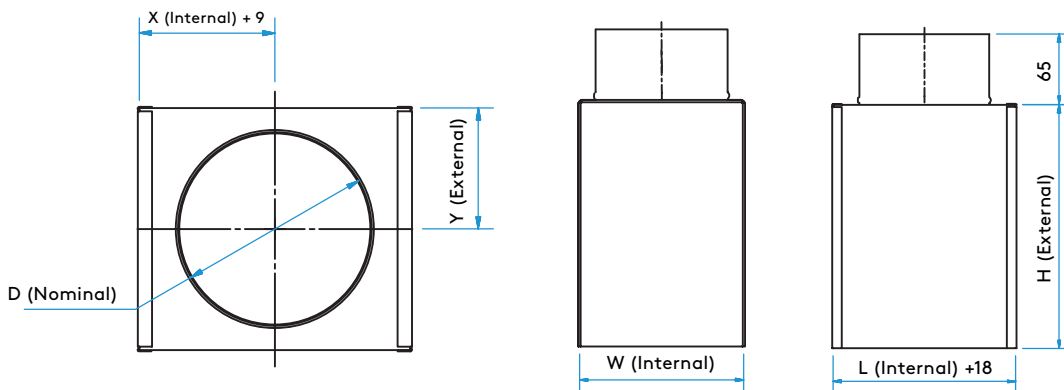
| Size | Dia |
|------|-----|
| 300 | 340 |
| 400 | 450 |
| 500 | 530 |
| 600 | 640 |

Square SW5 Diffusers/Square Plenum Options

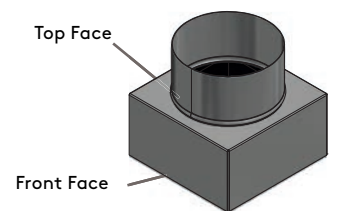
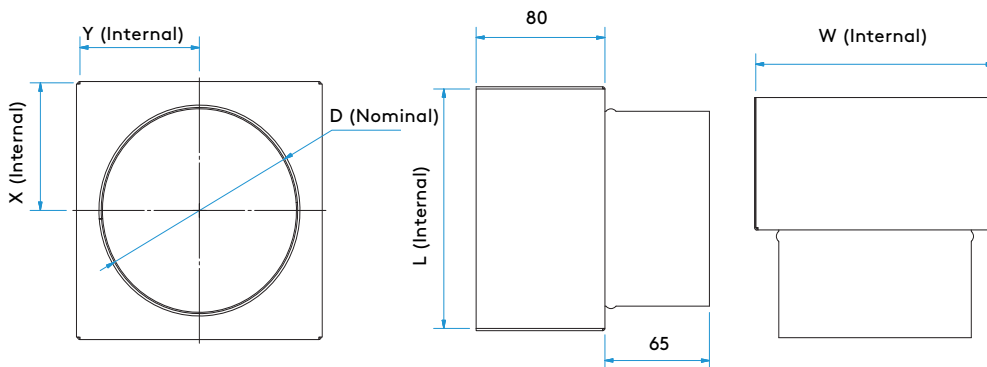
PBS-1 (Plenum Box Square - Side Entry)



PBS-2 (Plenum Box Square - Top Entry)



PA (Pan Adapter)

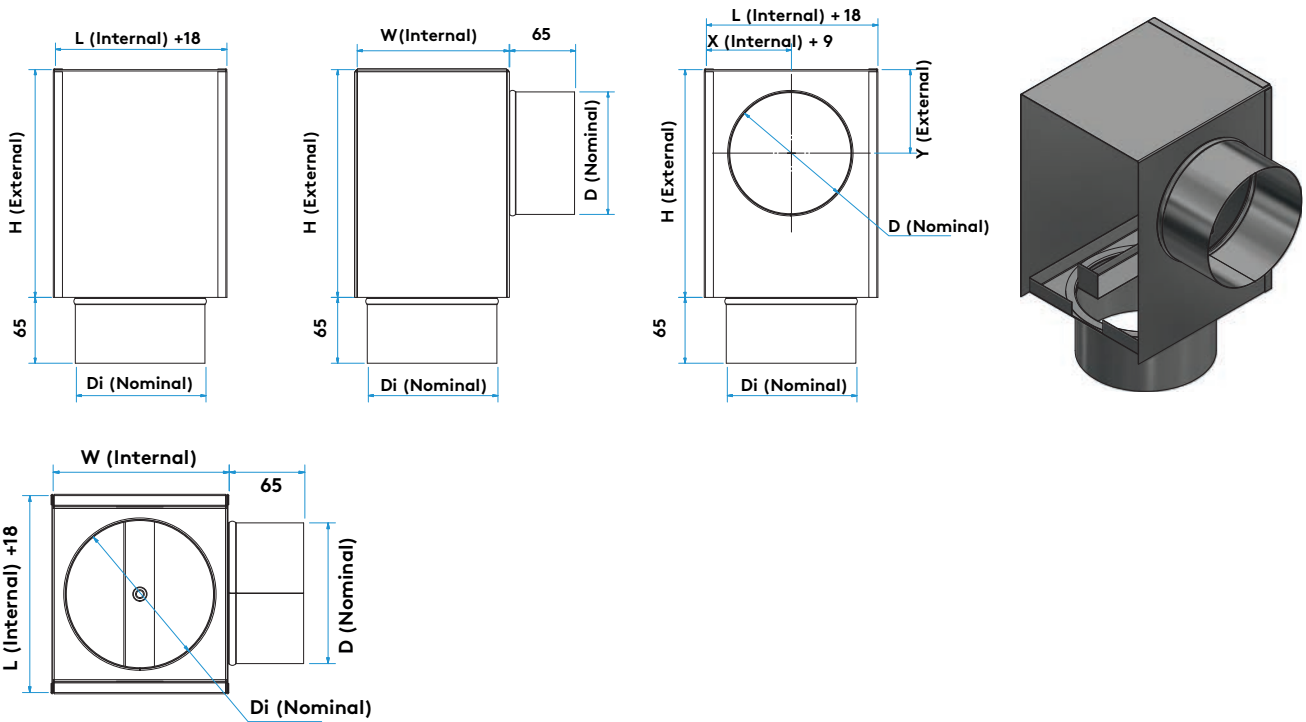


Note: All measurements are in mm

Square diffuser, Square Plenum

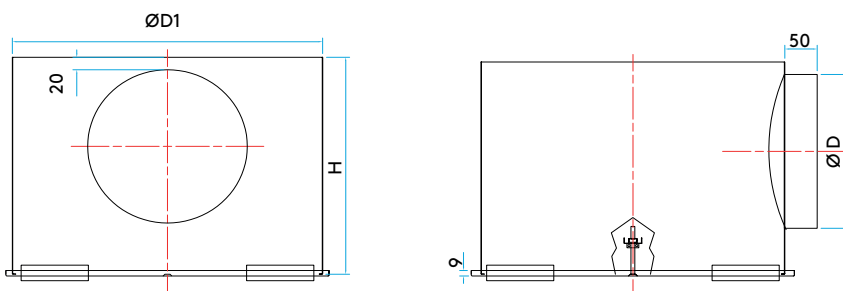
| Size | L (mm) | W (mm) | H (mm) | D (mm) |
|------|--------|--------|--------|--------|
| 300 | 264 | 264 | 225 | 125 |
| 400 | 360 | 360 | 260 | 160 |
| 500 | 460 | 460 | 300 | 200 |
| 600 | 550 | 550 | 350 | 250 |

Circular SW5 Diffusers/Square Plenum



| Diffuser Size | L (mm) | W (mm) | H | D | Di |
|---------------|--------|--------|-----|-----|-----|
| 300 | 300 | 300 | 225 | 125 | 260 |
| 400 | 400 | 400 | 260 | 160 | 356 |
| 500 | 500 | 500 | 300 | 200 | 456 |
| 600 | 600 | 600 | 350 | 250 | 546 |

Circular SW5 Diffusers/Circular Plenum



Key to Plenum Drawings

- ▶ L - Length of plenum (internal)
- ▶ W - Width of plenum (internal)
- ▶ H - Height of plenum (external)
- ▶ D - Nominal spigot diameter
- ▶ A - Square spigot width (nominal)
- ▶ B - Square spigot height (nominal)
- ▶ X - Spigot horiz. dimension (internal face)
- ▶ Y - Spigot vertical position (external face)
- ▶ Di - Circular adaptor spigot diameter (nominal)
- ▶ D1 - Diameter of plenum (internal)

| Diffuser | D1 | H | D |
|----------|-----|-----|-----|
| 300 | 290 | 225 | 125 |
| 400 | 390 | 260 | 160 |
| 500 | 490 | 300 | 200 |
| 600 | 590 | 350 | 250 |

Note: All measurements are in mm

Standard Fixing and Installation

Installation method

Single central 6mm hole in a circular or square panel diffuser. The diffuser may also be provided with no fixings for installation by others.

When using a diffuser and plenum box combination, the diffuser is normally fixed to the plenum box by a single central fixing.

All installations require the diffuser and plenum to be supported independently, usually achieved via the plenum hanging brackets and suspended with cords, wires or hangers to be provided by others.

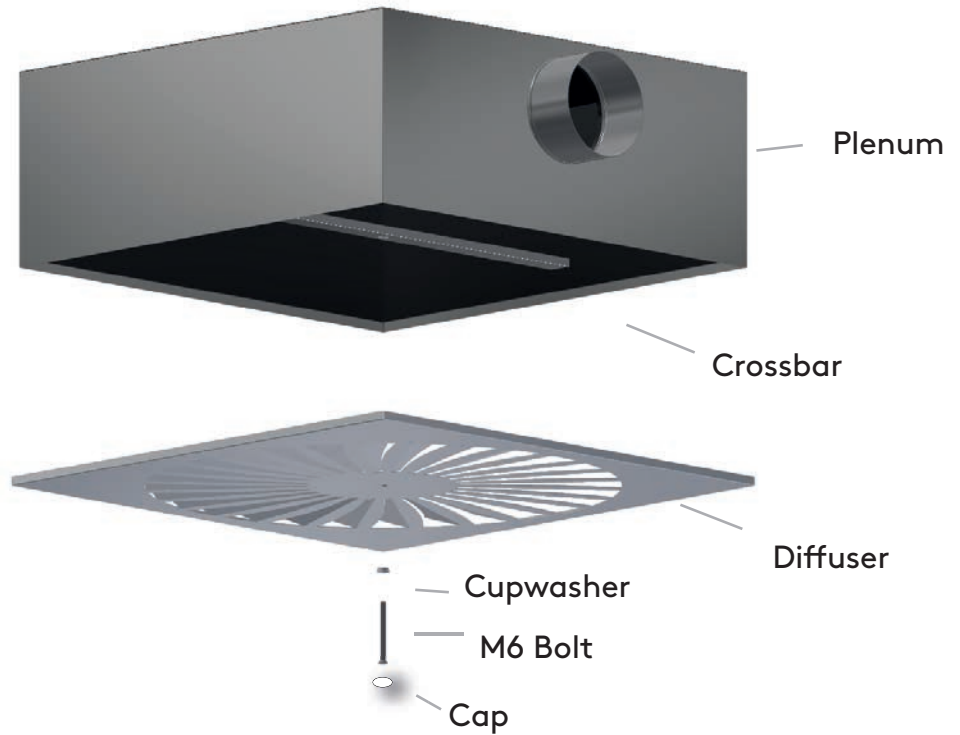
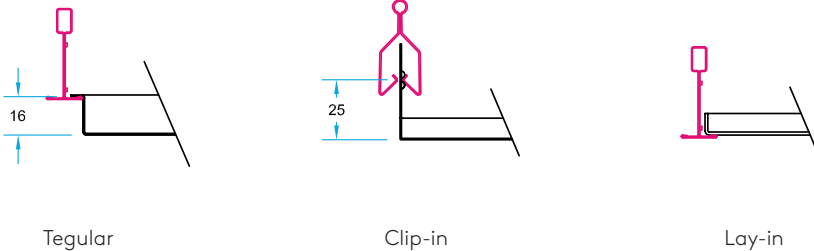


Figure 1 showing central fixing into plenum crossbar

Suspended ceiling application

Installation as Figure 1, integrated into the particular ceiling system as examples below.



Solid Ceiling

| Diffuser Size | Nominal Cut Out |
|---------------|-----------------|
| 300 | 270 ø |
| 400 | 370ø |
| 500 | 470 ø |
| 600 | 560 ø |

Note: All measurements are in mm

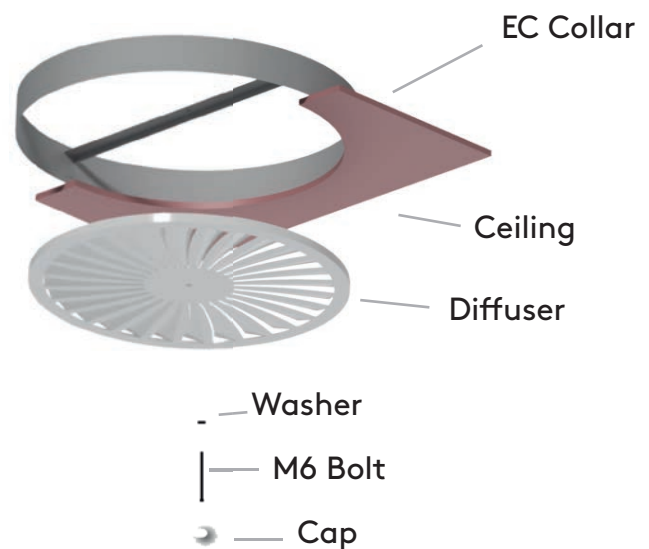


Figure 2 - Showing solid ceiling installation with fixing collar for a non-duct return system.

Ordering Key

Diffuser

Example

| Model Type | Plate Type | Size | Fixings | Plate Colour | Accessories |
|---|---|--------------------------|--|---|---|
| SW5 | L | 600 | F 1 | 3 | N |
| Model swirl ⁵ diffuser with curved radial pattern slots. | Circular C Square | 300 400 500 600 | F1 (standard) - Central Fixing hole | 2 - Silver PPC/RAL 9006 3 - White PPC/RAL 9010 4 - Black PPC/RAL 9005 6* - PPC/Special Finish 7 - White PPC/RAL 9003 16 - White PPC/RAL 9016 | N -None LB -Light Baffle EX - Extract Collar |
| | L - Lay in style ceiling grid / surface mounted 8T/15 - 8mm Tegular style ceiling grid (15mm grid) 8T/24 - 8mm Tegular style ceiling grid (24mm grid) 16T/15 - 16mm Tegular style ceiling grid (15mm grid) 16T/24 - 16mm Tegular style ceiling grid (24mm grid) 120C - 120 Clip in (spring tee) style ceiling grid 150C - 150 Clip in (spring tee) style ceiling grid | | | * Paint Finishes Please state RAL colour -additional charges may apply | |
| | | *600 only | | | |

Plenum Boxes

Example

| Box Type | Lining | Spigot Damper | Options | Colour |
|--|--|---|---|---|
| PBS-1 | L | C | 3 | 0 |
| PBS-1 - Plenum box to suit square /rectangular diffuser with circular or square side entry spigot. | U - Standard Unlined Plenum Box L - 6mm Class 'O' Internal Lining | N - Plain spigot (no damper) Q - Quadrant damper fitted to spigot. C - Cord operated damper fitted to spigot | 0 - No options 2 - Equalising Grid (50% free area mesh) 3 - Fixing lugs fitted to side of plenum | 0 - Mill Finish 2 - Silver PPC/RAL 9006 3 - White PPC/RAL 9010 4 - Black PPC/RAL 9005 6* - PPC/Special Finish 7 - White PPC/RAL 9003 16 - White PPC/RAL 9016 |
| PBS-2 - Plenum box to suit square/ rectangular diffuser with circular or square top entry spigot. | | | | |
| PA - 1 Pan Adapter to suit square/rectangle diffuser with square or circular top entry | | | | * Paint Finishes Please state RAL colour -additional charges may apply |
| PBC-1 - Circular plenum box to suit circular diffuser with a circular side entry spigot. | | | | |

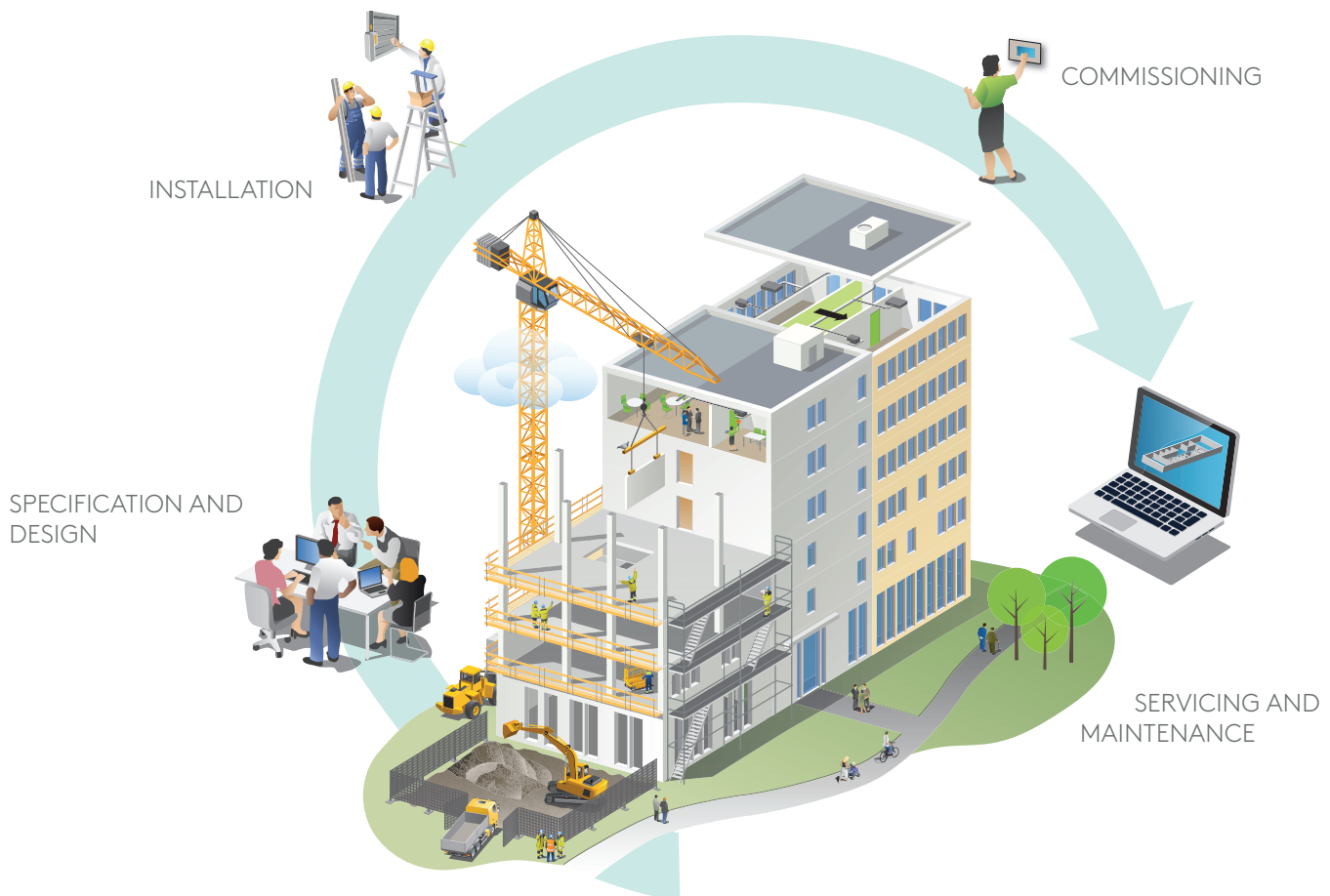
Swegon are here for you from the start to the end of a project and throughout the lifecycle of the building

A construction project is complex with a large number of parties who will collaborate in various sub-projects over a long period of time. Everyone is an expert with a focus on their individual part, so it's no wonder if sometimes there are design conflicts and sub-optimal solutions, with increased risk of impact on the project timeline and budget as a result.

We at Swegon are included in all phases of the project. Therefore, we know that both challenges and needs differ depending on who you are and in what phase of the project you are working.

Swegon has unique knowledge of the entire construction process. In order to be able to choose the right system solution, an overall perspective and a deep knowledge of the intended function of the building is required.

While others specialise in their individual part, Swegon's expertise covers all.



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